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Chapter 1

The Metaphysical Foundations of Perception

INTRODUCTION

One of the cornerstones of Aristotle's theory of perception is that the world is truly as colorful as it looks to us, as noisy as it sounds to us, etc. By generalization, Aristotle holds that we perceive the world through the senses *as it is*; in other words, the contents of our perceptions are just like the real properties of the external objects we perceive.¹ While there is scholarly consensus on Aristotle's realism with respect to perceptible qualities, a variety of ways of interpreting it have been put forward in the literature. This book makes an original contribution to the debate by motivating the view that Aristotle's theory of perception is aligned with one of his most fundamental positions in metaphysics, namely that all properties are causal powers (*δυνάμεις*, potentialities), and that causation is to be accounted for in terms of powers and their activation (*ἐν ἐνεργείᾳ* or *ἐνεργείᾳ*, actuality).² Thus, in the case of perception the perceptible qualities of objects are real powers of the object to interact causally with the perceivers, and perception itself is the activation of the relevant powers in the perceiver by the objects of perception. The activation of the object's perceptible qualities and the activity of the corresponding perceptual experience in the agent are mutually

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dependent in a variety of ways, which are unique to Aristotle's perceptual realism.

Before exploring this view in more detail, it will be helpful to briefly introduce the key terms that will be relevant for the following discussion. The Aristotelian scholar might indeed already be surprised by my use of the terms 'power' for 'potentiality' on the one hand, and 'activation' for 'actuality' on the other. These are interpretative choices, and in some ways departures from the received tradition; I will explain them presently. The Greek term δύναμις, as Aristotle uses it, refers to a property whose nature is defined in terms of the change it can bring about, or which it can allow its bearer to suffer. The most common English translation of δύναμις thus understood is 'potentiality'. This translation, albeit well established, is unhelpful when we embark on an investigation of Aristotle's views, for three main reasons. Firstly, it blurs the conceptual distinction between the property itself, that is, the causal power, and the state it is in, because they both end up being referred to as 'potentiality'. Secondly, it obscures the relevance of Aristotle's view to contemporary metaphysics: the term 'potentiality' does not figure in the contemporary discourse, although what it refers to in Aristotle is very much at the center of current discussion in metaphysics.³ Thirdly, it generates unnecessary difficulties for our understanding of what an activated power is. I thus propose to use the term 'power' as a translation of δύναμις when it refers to causal powers, and to use the term 'potentiality' when referring to the state that causal powers are in when not activated.

Some powers, for Aristotle, exist in nature ἐν δυνάμει or δυνάμει and others ἐν ἐνεργείᾳ or ἐνεργείᾳ. For these expressions I use the current translation 'in potentiality' or 'potentially', and 'in actuality' or 'actually', respectively. While keeping to the standard translation, I offer however an original interpretation of what it is for a power to be in actuality. I argue that the actuality of a power is to

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be interpreted as its *state of activation*; its exercising powerfulness. For Aristotle, a power does not cease to be powerful while activated, nor is its powerfulness reducible to mere potentiality, as we will see in more detail later. The powerfulness of a power is either the potentiality to bring about change, or the actuality of bringing about change. That the powerfulness and the potentiality of a power are not reducible one to the other can be derived from the following stance Aristotle takes. He differentiates three states a subject *s* may be in in relation to a power: *s* may have a power in potentiality (as in the case of a child having the power to learn to play soccer); *s* may have a power in first actuality (when the child has learned to play soccer); and *s* may have a power in second actuality (when the child is playing soccer).⁴ For Aristotle some powers retain their potentiality only up to the state of first actuality, but not in second actuality. For example, when water is freezing and becoming an ice cube, in the first stages of this process the ice cube in the making is not actually fragile but can acquire the capacity to break if it cooled down more. When it is cooled down more the ice cube becomes harder and brittle, and can potentially break (e.g. by being crushed). Crushing it activates its brittleness, namely its power to break. When the ice cube is actively breaking it loses the potentiality to break. By contrast, other powers retain their potentiality when in second actuality; for instance, the child's potentiality to play soccer is preserved while playing soccer, namely while the power is activated. Aristotle explains:

Even the term 'being acted upon' is not used in a single sense, but sometimes it means a kind of destruction of something by its contrary, and sometimes rather a preservation of that which is potential by something actual which is like it, as potency is related to actuality. For when the one merely possessing knowledge comes to exercise it, he is not altered (for the development

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is into his real self or actuality), or else this is a different kind of alteration (DA 417b2–7)

οὐκ ἔστι δ' ἀπλοῦν οὐδὲ τὸ πάσχειν, ἀλλὰ τὸ μὲν φθορά τις ὑπὸ τοῦ ἐναντίου, τὸ δὲ σωτηρία μᾶλλον τοῦ δυνάμει ὄντος ὑπὸ τοῦ ἐντελεχείᾳ ὄντος, καὶ ὁμοίου οὕτως ὡς δύναμις ἔχει πρὸς ἐντελέχειαν. θεωροῦν γὰρ γίνεται τὸ ἔχον τὴν ἐπιστήμην, ὅπερ ἢ οὐκ ἔστιν ἀλλοιοῦσθαι (εἰς αὐτὸ γὰρ ἢ ἐπίδοσις καὶ εἰς ἐντελέχειαν) ἢ ἕτερον γένος ἀλλοιώσεως.

A power is powerful because of its relation to change—it can lead to change, or it engages in change that preserves it.⁵

1.1 ARISTOTLE'S POWER ONTOLOGY

Aristotle's power ontology, as briefly sketched thus far, bears on his theory of perception. For him, the perceptible qualities that characterize the world around us are *real causal powers* objects have, as we will see in the next chapters. Why are powers so central to Aristotle's metaphysics, and consequently to all domains of his investigation, including perception? How did he reach this view? Aristotle aims at a rational explanation of the world all the way down to the bedrock of reality. In the *De Generatione et Corruptione* he states that at this fundamental level of reality there are properties and bodies, and there is a rationale to the number of bodies and the way the properties are distributed among them. He writes,

The [fundamental] differences [i.e., properties] are *reasonably* distributed among the primary bodies, and the number of the latter is *consonant with theory*. (GC 330b6–7, my emphasis)

εὐλόγως διανέμεσθαι τὰς διαφορὰς τοῖς πρώτοις σώμασι, καὶ τὸ πλήθος αὐτῶν εἶναι κατὰ λόγον.

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In thinking about the properties that characterize the primary bodies, Aristotle narrows down the candidates for this role of fundamental property to the *tangible contraries* (GC 329b6–9), which for him are:

[Properties] ... capable of acting [and] being affected ... said of things in virtue of their acting upon something else or being acted upon by something else. (GC 329b21–22)

... ποιητικά...παθητικά...τῷ ποιεῖν τι ἕτερον ἢ πάσχειν
ὅφ' ἑτέρου λέγονται.

Clearly then for Aristotle these properties are *powers*: they are properties whose nature is to bring about or allow their bearer to suffer change. Aristotle goes through an analysis of the list of tangible contraries, and concludes that they are all reducible to four primary or fundamental ones. These primary powers are heat, cold, wetness, and dryness:

It is clear...that all the other differences reduce to the first four, but that these admit of no further reduction...Hence these must be four. (GC 330a24–29)

Δηλον...ὅτι πᾶσαι αἱ ἄλλαι διαφοραὶ ἀνάγονται εἰς τὰς
πρώτας τέτταρας. Αὗται δὲ οὐκέτι εἰς ἐλάττους...ὥστ' ἀνάγκη
τέτταρας εἶναι ταύτας.

These primary powers do not exist separately each on its own; they pair up and constitute the *four simple elements*: namely fire, air, water, and earth:

Fire is hot and dry, whereas Air is hot and moist... and Water is cold and wet, while Earth is cold and dry. (GC 330b3–5)

τὸ μὲν γὰρ πῦρ θερμὸν καὶ ξηρόν, ὁ δ' ἀήρ θερμὸν καὶ
ὕγρόν...τὸ δ' ὕδωρ ψυχρόν καὶ ὕγρόν, ἡ δὲ γῆ ψυχρόν καὶ ξηρόν.

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Aristotle holds that there are no other primary properties that any of the simple elements possesses in addition to the two contrary powers each simple element is qualified by. The simple elements can reciprocally transform into one another by gaining or losing their powers.⁶ For example the simple elements water and fire have two contrarities each, and when they come in contact the interaction between them results in the heat of fire overpowering the coldness of the water while the wetness of water overpowers the dryness of fire, giving rise to what is hot and wet, namely air. And when air loses its primary power of heat, which is replaced by the power of cold, it transforms into water again. Aristotle writes:

For these bodies [Fire, Water and the like] change into one another (they are not immutable as Empedocles and other thinkers assert, since alteration would then have been impossible), whereas the *contrarities do not change*. (GC 329a35–b3, my emphasis)

ταῦτα μὲν γὰρ μεταβάλλει εἰς ἄλλα, καὶ οὐχ ὥς Ἐμπεδοκλῆς καὶ ἕτεροι λέγουσιν (οὐδὲ γὰρ ἂν ἦν ἀλλοίωσις), αἱ δ' ἐναντιώσεις οὐ μεταβάλλουσιν.

There will be Air, when the cold of the Water and the dry of the Fire have passed away (since the hot of the latter and the moist of the former are left); whereas, when the hot of the Fire and the moist of the Water have passed-away, there will be Earth, owing to the survival of the dry of the Fire and the cold of the Water. So, too, in the same Way, Fire and Water will result from Air and Earth. For there will be Water, when the hot of the Air and the dry of the Earth have passed-away (since the moist of the former and the cold of the latter are left); whereas, when the moist of the Air and the cold of the Earth have passed-away, there will be Fire, owing to the survival of

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the hot of the Air and the dry of the Earth—qualities constitutive of Fire. (GC 331b14–24)

“Ὅταν μὲν γὰρ τοῦ ὕδατος φθαρῇ τὸ ψυχρόν τοῦ δὲ πυρὸς τὸ ξηρόν, ἤηρ ἔσται (λείπεται γὰρ τοῦ μὲν τὸ θερμὸν τοῦ δὲ τὸ ὑγρόν), ὅταν δὲ τοῦ μὲν πυρὸς τὸ θερμὸν τοῦ δ’ ὕδατος τὸ ὑγρόν, γῆ, διὰ τὸ λείπεσθαι τοῦ μὲν τὸ ξηρόν τοῦ δὲ τὸ ψυχρόν. ὡσαύτως δὲ καὶ ἐξ ἀέρος καὶ γῆς πῦρ καὶ ὕδωρ· ὅταν μὲν γὰρ τοῦ ἀέρος φθαρῇ τὸ θερμὸν τῆς δὲ γῆς τὸ ξηρόν, ὕδωρ ἔσται (λείπεται γὰρ τοῦ μὲν τὸ ὑγρόν τῆς δὲ τὸ ψυχρόν), ὅταν δὲ τοῦ μὲν ἀέρος τὸ ὑγρόν τῆς δὲ γῆς τὸ ψυχρόν, πῦρ, διὰ τὸ λείπεσθαι τοῦ μὲν τὸ θερμὸν τῆς δὲ τὸ ξηρόν, ἄπερ ἦν πυρός.

The simple elements can combine between them in different proportions to make up more complex kinds of stuff. Thus the (instantiated) primary powers are the primitive (or basic) and fundamental building blocks of reality. The primary powers are primitive because they are not constituted of any further items as their building blocks. There are no items constituting the primary properties, and therefore there are no further items constituting the simple elements—air, water, earth, and fire—apart from their primary powers. On the other hand, they are fundamental because the primary properties, to which the other properties are reducible,⁷ interact with each other in the cyclical transformations of the primary elements they constitute,⁸ thereby making up a structure of interacting powers that is the foundation of all there is in nature. In view of the fact that for Aristotle everything in physical nature is built out of the four simple elements and their mixtures, and the simple elements are built out of the primary properties, it follows that all there is in nature is built out of *powers*. All physical changes in nature derive from changes in the combinations of the primary powers. Since, on Aristotle’s view, powers require other powers to activate them, this gives rise to a net of interdependent powers,

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which, ultimately, constitute everything in nature. It is a structure of dependences, not of relations between powers. Nor is it a structure of relations that constitute powers; dependence does not introduce relations or make powers relational entities in their constitution. Furthermore, as we shall see, for Aristotle the manifestation of each power is intrinsic to the power itself. Being activated is simply exercising the powerfulness that defines what the power is.⁹

1.2 THE NATURE OF CAUSAL POWERS

In general terms, for Aristotle, a power is first and foremost the capacity to *bring about change*:

All potentialities that conform to the same type are *starting points* of some kind, and are called *potentialities* in reference to one primary kind, which is a starting point of *change* in another thing or in the thing itself *qua* other. (*Met.* 1046a9–11, my emphasis)¹⁰

ὅσαι δὲ πρὸς τὸ αὐτὸ εἶδος, πᾶσαι ἀρχαί τινές εἰσι, καὶ πρὸς
πρώτην μίαν λέγονται, ἥ ἐστὶν ἀρχὴ μεταβολῆς ἐν ἄλλῳ ἢ
ἢ ἄλλο.

It is important to note from the start that Aristotle's very explanation of powers as being sources of change, and nothing other than that, commits him, albeit implicitly, to the view that all there is to a power is what it can do, or is doing. Nothing inert or impotent is needed in the power's nature to anchor the power to reality.¹¹ This commitment (which is shared by a number of contemporary power metaphysicians)¹² is not uncontroversial;¹³ however, it is crucial to free Aristotle's power ontology from any of the regresses that ensue for other power ontologies, as we will see later.

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In addition to the primary type of powers just mentioned, that is the *active* ones which can initiate change, for Aristotle there exist *passive* powers that are capacities to suffer change:

For one kind is a potentiality for being acted on (i.e., the principle in the very thing acted on) which makes it capable of being changed and acted on by another thing or by itself regarded as other. (*Met.* 1046a11–13)

ἡ μὲν γὰρ τοῦ παθεῖν ἐστὶ δύναμις, ἡ ἐν αὐτῷ τῷ πάσχοντι ἀρχὴ μεταβολῆς παθητικῆς ὑπ’ ἄλλου ἢ ἡ ἄλλο.

Examples of such capacities or powers are, for example, fragility, or malleability, or flexibility, etc. For Aristotle being able to change is as much a capacity or power as being able to effect change, as he states:

In a sense the potentiality of acting and of being acted on is one (for a thing may be capable either because it can be acted on or because something else can be acted on by it), but in a sense the potentialities are different. For the one is in the thing acted on; it is because it contains a certain motive principle, and because even the matter is a motive principle, that the thing acted on is acted on...for that which is oily is inflammable; and that which yields in a particular way can be crushed; and similarly in all other cases. But the other potency is in the agent (e.g. heat and the art of building are present, one in that which can produce heat and the other in the man who can build). (*Met.* 1046a19–28)

φανερὸν οὖν ὅτι ἔστι μὲν ὡς μία δύναμις τοῦ ποιεῖν καὶ πάσχειν (δυνατὸν γὰρ ἐστὶ καὶ τῷ ἔχειν αὐτὸ δύναμιν τοῦ παθεῖν καὶ τῷ ἄλλο ὑπ’ αὐτοῦ), ἔστι δὲ ὡς ἄλλη. ἡ μὲν γὰρ ἐν τῷ πάσχοντι (διὰ γὰρ τὸ ἔχειν τινὰ ἀρχήν, καὶ εἶναι καὶ τὴν ὕλην ἀρχήν τινα,

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πάσχει τὸ πάσχον... τὸ λιπαρὸν μὲν γὰρ καυστὸν τὸ δ' ὑπεῖκον
ὥδι θλαστόν, ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων), ἡ δ' ἐν τῷ ποιοῦντι,
οἶον τὸ θερμὸν καὶ ἡ οἰκοδομική, ἡ μὲν ἐν τῷ θερμαντικῷ ἡ δ' ἐν
τῷ οἰκοδομικῷ.

A notion that is distinctive to Aristotle's account is conceiving of passive powers as *originative sources of change* (see *Met.* 1046a11–13; a23). It is natural for us to think that an originative source of change is a power to *bring about* change; but it is not as natural to think that an originative source of change is a capacity to *suffer* change. Yet Aristotle sees both active and passive powers as originative sources of change, the one as a source that changes something, and the other as a source of suffering change. In fact, Aristotle gives several examples of originative sources of suffering change to make his point clear, such as, for example, oil or brittle matter.¹⁴ Both active and passive powers are mentioned in Aristotle's definition of power in *Met.* V 12:

Things which are called capable (δυνατόν) in one sense will be those which originate change or alteration... in other things or *qua* other; in another sense, if something else possesses such capacity over them. (*Met.* 1019a33–b1)

καὶ τὸ δυνατόν ἕνα μὲν τρόπον λεχθήσεται τὸ ἔχον κινήσεως
ἀρχὴν ἢ μεταβολῆς... ἐν ἑτέρῳ ἢ ἢ ἕτερον, ἕνα δ' ἐὰν ἔχη τι
αὐτοῦ ἄλλο δύνανται τοιαύτην.

The former is the primary case for Aristotle; 'the others are called capable either from something else's possessing a capability of that kind over them, or from its not possessing it, or from its possessing it in a particular way' (*Met.* 1020a2–4).

As I will argue below, it is a fundamental tenet for Aristotle that powers are *dependent on other powers* in order to be activated. For

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example the solubility of salt requires salt to be placed in an appropriate liquid in order for it to dissolve. The position was first put forward by Heraclitus, endorsed by Plato,¹⁵ and then developed by Aristotle; interestingly it is gaining consensus among contemporary metaphysicians too.¹⁶ But it is a distinctive Aristotelian view (and far from being a point of consensus among contemporary power metaphysicians) that *active* powers depend on *passive* powers for their activation (and vice versa). Aristotle defines an active power as one that exercises its powerfulness on a corresponding passive one.¹⁷ As I will argue below, the distinction between active and passive powers is pivotal for a sound account of causation, for it gives metaphysical underpinning to its asymmetry.¹⁸

1.3 CAUSAL POWERS IN ACTUALITY

Powers are capacities for change; the change is the end (τέλος) they are directed toward.¹⁹ For a power, reaching its end is exercising its powerfulness, and thereby becoming actual. Most importantly, for Aristotle the actuality of a power is its *activation*, namely a transition to a different *status* of the power itself.²⁰ This new stage reached by the activated power is the causal *activity* the power is engaged in. For example, the power to heat when activated is *heating* something else. Aristotle in fact distinguishes between powers whose activation is an *activity* in the strict sense (ἐνέργεια, πράξις), and others whose activation is a *process* (κίνησις). The powers whose ends are activities are realized instantaneously, such as in the case of the power to see; at any one moment one sees and has seen. The powers whose ends are processes are realized in stages, such as in the case of the power to build a house; while one is building a house, one has not built a house. Processes have a natural completion point: when the end of the process is reached, such as the completion of the

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house; activities do not have a natural completion point (e.g., in the case of seeing). Strictly speaking Aristotle associates *change* with *processes* only, because in the case of processes the resulting state is qualitatively different from the initial state—as for instance in the case of heating (process), but not of seeing (activity).²¹ To make Aristotle's point even clearer we might say that processes only have an output, while both processes and activities have an effect. Aristotle's distinctions are mainly presented in the following text from the *Metaphysics*:

Since of the actions which have a limit none is an end but all are relative to the end (e.g., the process of making thin is of this sort) and the things themselves when one is making them thin are in movement in this way (i.e., without being already that at which the movement aims), this is not an action or at least not a complete one (for it is not an end); but that in which the end is present is an action. For example, at the same time we are seeing and have seen, are understanding and have understood, are thinking and have thought: but it is not true that at the same time we are learning and have learned, or are being cured and have been cured. At the same time we are living well and have lived well, and are happy and have been happy. If not, the process would have had sometime to cease, as the process of making thin ceases: but, as it is, it does not cease: we are living and have lived. Of these processes, then, we must call the one set movements (κινήσεις), and the other actualities (ἐνεργείας). For every movement is incomplete—making thin, learning, walking, building—these are movements, and incomplete movements. For it is not true that at the same time we are walking [to a destination] and have walked [to the destination], or are building and have built, or are coming to be and have come to be—it is a different thing that is being moved

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and that has been moved, and that is moving [to a location] and that has moved; but it is the same thing that at the same time has seen and is seeing, or is thinking and has thought. The latter sort of process, then, I call an actuality (ἐνέργεια), and the former a movement (κίνησις). What, and what kind of thing, the actual is, may be taken as explained by these and similar considerations. (*Met.* 1048b18–36)

Ἐπεὶ δὲ τῶν πράξεων ὧν ἔστι πέρας οὐδεμία τέλος ἀλλὰ τῶν περὶ τὸ τέλος, οἷον τὸ ἰσχυαίνειν [ἢ ἰσχυασία] [αὐτό], αὐτὰ δὲ ὅταν ἰσχυαίνη οὕτως ἐστὶν ἐν κινήσει, μὴ ὑπάρχοντα ὧν ἕνεκα ἡ κίνησις, οὐκ ἔστι ταῦτα πράξεις ἢ οὐ τελεία γε· οὐ γὰρ τέλος· ἀλλ' ἐκείνη <ἢ> ἐνυπάρχει τὸ τέλος καὶ [ἢ] πράξις. οἷον ὁρᾷ ἅμα <καὶ ἐώρακε,> καὶ φρονεῖ <καὶ πεφρόνηκε,> καὶ νοεῖ καὶ νενόηκεν, ἀλλ' οὐ μανθάνει καὶ μεμάθηκεν οὐδ' ὑγιαίνει καὶ ὑγιαίνει. εὖ ζῇ καὶ εὖ ἔζηκεν ἅμα, καὶ εὐδαιμονεῖ καὶ εὐδαιμόνηκεν. εἰ δὲ μή, ἔδει ἂν ποτε παύεσθαι ὥσπερ ὅταν ἰσχυαίνη, νῦν δ' οὐ, ἀλλὰ ζῇ καὶ ἔζηκεν. τούτων δὴ <δεῖ> τὰς μὲν κινήσεις λέγειν, τὰς δ' ἐνεργείας. πᾶσα γὰρ κίνησις ἀτελής, ἰσχυασία μάθησις βάδισις οἰκοδόμησις· αὗται δὲ κινήσεις, καὶ ἀτελεῖς γε. οὐ γὰρ ἅμα βαδίζει καὶ βεβάδικεν, οὐδ' οἰκοδομεῖ καὶ ὠκοδόμηκεν, οὐδὲ γίγνεται καὶ γέγονεν ἢ κινεῖται καὶ κεκίνηται, ἀλλ' ἕτερον [καὶ κινεῖ καὶ κεκίνηκεν]. ἐώρακε δὲ καὶ ὁρᾷ ἅμα τὸ αὐτό, καὶ νοεῖ καὶ νενόηκεν. τὴν μὲν οὖν τοιαύτην ἐνέργειαν λέγω, ἐκείνην δὲ κίνησιν. τὸ μὲν οὖν ἐνεργεῖα τί τέ ἐστι καὶ ποῖον, ἐκ τούτων καὶ τῶν τοιούτων δηλὸν ἡμῖν ἔστω.

From the above text we learn that powers are actualized, according to Aristotle, as either activities or processes. The difference between them is that processes have a beginning and an end which are different from each other, so completing the realization of the end requires qualitatively different stages in a process; while in an activity the beginning and the end are the same, in a

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continuous realization of the end. Since while a process is taking place it has not reached its end point yet, it can be thought of as a power in the process of being actualized, which is how Aristotle thinks about it. A process is an actuality, because the unfolding realization of its different stages is happening; but at the same time it is not fully realized, in so far as it has not reached its end yet. In that sense a change is an *actual* process in progress, realizing its remaining *potential* stages, as Aristotle explains in the *Physics*:

The *actuality* of the potential, *qua* potential, is change (e.g., the actuality of what is alterable as alterable, is alteration; of what is increasable and its opposite, decreasable (there is no common name for both), increase and decrease; of what can come to be and can pass away, coming to be and passing away; of what can be carried along, locomotion). That this is what change is, is clear from what follows: when what is buildable, in so far as we call it such, is in fulfillment, it is being built, and that is building. (*Phys.* 201a9–18, transl. slightly modified)

ἡ τοῦ δυνάμει ὄντος ἐντελέχεια, ἥ τοιοῦτον, κίνησις ἐστίν, οἷον τοῦ μὲν ἀλλοιωτοῦ, ἢ ἀλλοιωτόν, ἀλλοίωσις, τοῦ δὲ αὐξητοῦ καὶ τοῦ ἀντικειμένου φθιτοῦ (οὐδὲν γὰρ ὄνομα κοινὸν ἐπ' ἀμφοῖν) αὐξήσις καὶ φθίσις, τοῦ δὲ γενητοῦ καὶ φθαρτοῦ γένεσις καὶ φθορά, τοῦ δὲ φορητοῦ φορά. ὅτι δὲ τοῦτο ἔστιν ἡ κίνησις, ἐντεῦθεν δῆλον. ὅταν γὰρ τὸ οἰκοδομητόν, ἢ τοιοῦτον αὐτὸ λέγομεν εἶναι, ἐντελεχέα ἢ, οἰκοδομεῖται, καὶ ἔστιν τοῦτο οἰκοδόμησις.

Some confusion might arise in reading the passage: it might appear that a power is potential before it is actualized, and again potential after it is actualized, as if there were unactualized and actualized

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potential. To avoid confusion it is important to bear in mind the distinction drawn by Aristotle between the *activation* of a power—that is, its realization—and the *completion* of the process of its realization. Thus, the power of house building becomes *actual* when *activated* at the beginning of the house-building process, and *continues to be in actuality* until all the stages of house building are completed. Although in activities the end is reached as soon as the activity occurs, and sets no limits to the duration of the activity, in the case of changes the end is complex; the process has to be initiated and continue activated until the end point of the process is reached, completing the process:

While in some cases the exercise is the ultimate thing (e.g., in sight the ultimate thing is seeing, and no other product besides this results from sight), but from some things a product follows (e.g., from the art of building there results a house as well as the act of building), yet none the less the act [of seeing] is in the former case the end and in the latter [the act of house building is] more of an end than the mere potentiality [to build] is [even if it is less of an end than the completion of the house]. (*Met.* 1050a24–27)

ἐπεὶ δ' ἐστὶ τῶν μὲν ἔσχατον ἡ χρῆσις (οἷον ὄψεως ἡ ὄρασις, καὶ οὐθὲν γίγνεται παρὰ ταύτην ἕτερον ἀπὸ τῆς ὄψεως), ἀπ' ἐνίων δὲ γίγνεται τι (οἷον ἀπὸ τῆς οἰκοδομικῆς οἰκία παρὰ τὴν οἰκοδόμησιν), ὁμῶς οὐθὲν ἦττον ἐνθα μὲν τέλος, ἐνθα δὲ μᾶλλον τέλος τῆς δυνάμεώς ἐστιν.

The contrast is between the potentiality for building a house when nothing is being built, and the potentiality for building a house while a house is being built. The latter potentiality is the activation of the former potentiality, and has an end point that marks its full actualization. This is what the actuality of the potential *qua*

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potential is—the actual process of building the house. During the building process, the power to build is *as activated* (and *as actual*) as is the power to see when one is seeing. Thus, when the power is actively doing what it is in its own nature capable of doing, then the power is actualized. Prior to this it exists but in a potential state. Thus the *actuality* of a power, whether for an activity or a process, is the *activation* of that power:²²

That which is in the primary sense potential is potential because it is possible for it to become actual (e.g., I mean by ‘capable of building’ that which can build, and by ‘capable of seeing’ that which can see). (*Met.* 1049b12–16)

τῷ λόγῳ μὲν οὖν ὅτι προτέρα, δῆλον (τῷ γὰρ ἐνδέχεσθαι ἐνεργῆσαι δυνατόν ἐστι τὸ πρῶτως δυνατόν, οἷον λέγω οἰκοδομικὸν τὸ δυνάμενον οἰκοδομεῖν, καὶ ὁρατικὸν τὸ ὁρᾶν, καὶ ὁρατὸν τὸ δυνατόν ὁρᾶσθαι.

Aristotle further distinguishes the *activation* of a power from the *realization* of the power’s end. The end of a power is given in the power’s definition:

That which is capable is capable of something and at some time in some way—with all the other qualifications which must be present in the definition. (*Met.* 1047b35–1048a2)

ἐπεὶ δὲ τὸ δυνατόν τί δυνατόν καὶ ποτὲ καὶ πῶς καὶ ὅσα ἄλλα ἀνάγκη προσεῖναι ἐν τῷ διορισμῷ.

As mentioned above, for Aristotle, the actuality of a power is *not* a new property that comes about.²³ Rather, it is the activation of the power, either as it is exercising its causal influence on the passive power or as the passive power is suffering that influence. For example, if a peach has the power to ripen in the heat, the ripening is the actualization

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of active and passive powers at play in the environment and in the peach. The ripe state of the peach that comes about is the aftermath of the activation of the powers, not their manifestation, which is the ripening process. Similarly, in the case of a builder who has the power to build a house, the built house is the output of the activation of the active and passive powers in play in the circumstances.

For Aristotle a power in potentiality is *the same power* as that power in actuality (i.e., when it is activated). In other words, the difference between potential and actual power is *not a numerical difference*. This is a very important and distinctive tenet of Aristotle's metaphysics, whose philosophical soundness shows up clearly if we consider it in relation to three debates in the recent literature on power metaphysics. In brief, these issues are: firstly, whether pure power ontologies of the kind Aristotle endorses (where there is nothing categorical anchoring the powers to reality) are committed to a world of mere potentiality; secondly, whether powers have an essentially relational nature; and thirdly, in what sense a power's directedness toward its manifestation is intrinsic to the power itself. I shall now examine each of these debates, showing in each case how Aristotle's view makes a fresh contribution, and advances the contemporary debate.

To begin with, is Aristotle's account vulnerable to the criticism that all there is or can be is potential, and that change is simply a transition from one potential state of the world to another such state? This is a problem faced by many contemporary power ontologies, sometimes referred to as the "Always packing, never traveling" problem.²⁴ David Armstrong formulates the problem thus:

Given purely dispositionalist accounts of properties, particulars would seem to be always repacking their bags as they change properties, yet never taking a journey from potency to act. (1997, 80)

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The problem stems from the position held by contemporary power ontologists whereby the manifestation of a power is *a new power*.²⁵ This position commits them to a network of powers in potentiality, as the activation of each power in potentiality is a transition to *a new* power in potentiality. Thus, nothing ever seems to be actualized. Avoiding a commitment to worlds of mere potentiality is precisely the worry that Aristotle's position avoids. On his view, and in contrast to alternative views in the contemporary literature, the transition a power makes from being in potentiality to being in actuality does not amount to bringing about *another* power in potentiality. It is rather a transition the power makes to *its own* activated state. An activated power is the very same power as the power in potentiality, but is now *manifesting* (e.g., the power to heat actively *heating* something). A theory of powers that did not allow them when activated to exercise their powerfulness would be rather odd indeed. For Aristotle powers that are exercising their powerfulness are actively bringing about change, and result in a new configuration of powers. But the exercise of powerfulness is not the result, but rather the process toward the result. From this discussion it follows that for Aristotle the powerfulness of a power is not reducible to mere potentiality. (This addresses the first of the three issues in contemporary metaphysical debate mentioned above). Powerfulness is the potentiality to bring about or suffer change, but also the activity of bringing about or suffering change. Additionally, the activation of a power is neither the end of that power, nor does it render the power inert. On the contrary, the power is actively being powerful by engendering change or suffering change.

Thus, the relation between a power and its actuality is *intrinsic* to the power itself, in the way that, for example, the relation of a girl to the woman she becomes is intrinsic to that person.²⁶ It is a common assumption, after Aristotle, that powers are defined in terms of their actuality. Contemporary power ontologies take the manifestation of a power to be a further power, thereby establishing

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a network of relations whereby each power is defined in terms of its relations to something different from itself, namely other powers. By contrast, on Aristotle's view the actuality of a power is not another power that the original power is related to. (The actuality of the power to heat is the power's heating up something else—and not another power.) It follows that Aristotle's ontology is *not relational*; a power is not defined in terms of its relation to other powers. Rather, a power is defined in terms of its own state of activation, which is an intrinsic state of the power itself.

It remains now to investigate whether powers for Aristotle have an essentially relational nature on account of their dependence on other powers for their activation. To consider this point, we need to look at the conditions for activation of powers that Aristotle sets out. For Aristotle, the activation of causal powers requires two sets of conditions to obtain. On the one hand there is a variety of what we would call *enabling conditions* pertaining to the right time, the right situation, the right external conditions. Aristotle summarizes them in saying that the mover is capable of something 'at some time in some way (with all the other qualifications which must be present in the definition)' (*Met.* 1048a1–2). On the other hand, he collectively describes what triggers powers in the right circumstances into causal activity generically, in terms of 'contact' between powers:

To act on the movable as such is just to move it. But this it does by contact, so that at the same time it [the mover] is also acted on. Hence motion is the fulfilment of the movable as movable, the cause being contact with what can move, so that the mover is also acted on. (*Phys.* 202a5–9)

τὸ γὰρ πρὸς τοῦτο ἐνεργεῖν, ἢ τοιοῦτον, αὐτὸ τὸ κινεῖν ἐστίν· τοῦτο δὲ ποιεῖ θίξει, ὥστε ἅμα καὶ πάσχει· διὸ ἡ κίνησις ἐντελέχεια τοῦ κινητοῦ, ἢ κινητόν, συμβαίνει δὲ τοῦτο θίξει τοῦ κινητικοῦ, ὥσθ' ἅμα καὶ πάσχει.

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What we learn from this passage (and others already quoted) is the following. First, powers for Aristotle are *dependent* entities. As we will see in more detail later in this chapter, for Aristotle powers are co-activated with their partner-powers. For example A's power to heat (p) requires B's capacity to get hotter (p') in order to be able to achieve its manifestation, that is, heating. Hence, every power is dependent on other powers for actualizing its nature by reaching its full activation state. But dependence is not a relation; it is rather a *condition for existence*.²⁷ Thus, as we will see later in the chapter, powers are not for Aristotle relations or relational properties. Secondly, contact is the triggering condition, with all the other conditions mentioned in the definition determining the enabling conditions for causal efficacy to take place. It is therefore important to understand what is involved in the contact between the active power and the passive power it operates on. Aristotle tells us that: 'Things are said to be in contact when their extremities are together' (*Physics* 226b23). He further explains that, 'Things are said to be together in place when they are in one primary place and to be apart when they are in different places'²⁸ (*Physics* 226a21–3). So things that are in contact have their extremities in the same place. For the purposes of causation, having the extremities in the same place will have to be understood as either touching or being in proximity. (It must have been as clear to everybody in antiquity as it is to us that there is causal impact even when things are merely proximate, namely, in the same place in the sense of same spatial region.) For example, proximity to a fire is sufficient for heating, and even for catching fire. So for Aristotle 'contact' is a key factor for causal efficacy. It does entail a type of proximity or sameness of place, but more importantly, in a causal context, it has come to mean, for him, *trigger of the change*, allowing that there is some kind of 'touching' even in situations where the touching is not physical and not even reciprocal:

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If anything imparts motion without itself being moved, it may touch the moved and yet itself be touched by nothing—for we say sometimes that the man who grieves us touches us, but not that we touch him. (GC 323a31–33)

Ὡστε εἴ τι κινεῖ ἀκίνητον ὄν, ἐκεῖνο μὲν ἂν ἅπτοιο τοῦ κινήτου, ἐκείνου δὲ οὐδέν· φαμέν γὰρ ἐνίοτε τὸν λυποῦντα ἅπτεσθαι ἡμῶν, ἀλλ’ οὐκ αὐτοὶ ἐκείνου.

To recapitulate, the conditions under which the actualization of powers takes place are determined in the very definition of the powers. The definition of a power specifies the *type* of power it is, namely what it is that it can bring about or suffer; the appropriate *occasion* on which the power can do this; the *way* in which it can do it; and any other *conditions* that need to obtain for it to do what it does. When all the conditions set out in the definition are met, including the appropriate pair of powers coming into *contact*, in the relevant sense of contact for the type of power they are, then *necessarily* the agent power acts on the passive power and brings about its effect:

Since that which is capable is capable of something and at some time in some way—with all the other qualifications which must be present in the definition, ... as regards potentialities of [those things that are non-rational, (e.g., fire)] ... when the agent and the patient meet in the way appropriate to the potentiality in question, the one *must* act and the other be acted on ... For the non-rational potentialities are all productive of one effect each. (Met. 1047b35–1048a8; my emphasis)

ἐπεὶ δὲ τὸ δυνατόν τι δυνατόν καὶ ποτὲ καὶ πῶς καὶ ὅσα ἄλλα ἀνάγκη προσεῖναι ἐν τῷ διορισμῷ, καὶ τὰ μὲν κατὰ λόγον δύναται κινεῖν καὶ αἱ δυνάμεις αὐτῶν μετὰ λόγου, τὰ δὲ ἄλογα καὶ αἱ δυνάμεις ἄλογοι, καὶ ἐκείνας μὲν ἀνάγκη ἐν ἐμψύχῳ εἶναι

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ταύτας δὲ ἐν ἀμφοῖν, τὰς μὲν τοιαύτας δυνάμεις ἀνάγκη, ὅταν
ὥς δύνανται τὸ ποιητικὸν καὶ τὸ παθητικὸν πλησιάξωσι, τὸ μὲν
ποιεῖν τὸ δὲ πάσχειν, ἐκείνας δ' οὐκ ἀνάγκη.

The modality is natural necessity, stemming from the nature of the powers themselves. When Aristotle says, in the quotation above, that ‘when the agent and the patient meet in the way appropriate to the potentiality in question, the one *must* act and the other be acted on’ he is stating what is in effect a most general *law of nature*. That is, he is stating what a power is in terms of how it behaves. When nature follows its course, according to Aristotle, it develops as its potentiality dictates, unless something external interferes. He says about the natural development of an organism (e.g., an acorn) in Book VIII of the *Metaphysics*:

In the cases in which the source of the becoming is in the very thing which comes to be, a thing is potentially all those things which it will be of itself if nothing external hinders it. (*Met.* 1049a12–14)

καὶ ὅσων δὴ ἐν αὐτῷ τῷ ἔχοντι [ἡ ἀρχὴ τῆς γενέσεως], [τοῦτο δυνάμει] ὅσα μηθενὸς τῶν ἔξωθεν ἐμποδίζοντος ἔσται δι’ αὐτοῦ.

This is how nature operates: there are physical tendencies, which unfold, unless something gets in their way and prevents their course. This may happen in the case of causal interaction, or in the case of the natural development of organisms according to their nature. This is why Aristotle describes the latter as being such-and-such *for the most part* in Book VI of the *Metaphysics*:

Physics must be a theoretical science, but it will theorize about such being as admits of being moved, and about substance-as-defined *for the most part*. (*Met.* 1025b26–28)

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ἡ φυσικὴ θεωρητικὴ τις ἂν εἴη, ἀλλὰ θεωρητικὴ περὶ τοιοῦτον ὃν ὃ ἐστὶ δυνατόν κινεῖσθαι, καὶ περὶ οὐσίαν τὴν κατὰ τὸν λόγον ὡς ἐπὶ τὸ πολὺ...

Both *change* and *development* are the results of unfolding potentialities, which follow their own course, for the most part, if nothing hinders.

Aristotle's characterization of this type of physical modality is a landmark in metaphysics, demarcating what has come to be thought of as physical necessity.²⁹ Again in the *Metaphysics*, Aristotle explains the notion of being *for the most part*, contrasting it to absolute necessity, as follows:

Since, among things which are, some are always in the same state and are of necessity (not necessity in the sense of compulsion but that which we assert of things because they cannot be otherwise), and some are not of necessity, nor always, but *for the most part*... For instance, if in the dog-days there is wintry and cold weather, we say this is an accident, but not if there is sultry heat, because the latter is always or *for the most part* so, but not the former. (*Met.* 1026b27–35, my emphasis)

—ἐπεὶ οὖν ἐστὶν ἐν τοῖς οὖσι τὰ μὲν αἰεὶ ὡσαύτως ἔχοντα καὶ ἐξ ἀνάγκης, οὐ τῆς κατὰ τὸ βίαιον λεγομένης ἀλλ' ἣν λέγομεν τῷ μὴ ἐνδέχεσθαι ἄλλως, τὰ δ' ἐξ ἀνάγκης μὲν οὐκ ἔστιν οὐδ' αἰεὶ, ὡς δ' ἐπὶ τὸ πολὺ, αὕτη ἀρχὴ καὶ αὕτη αἰτία ἐστὶ τοῦ εἶναι τὸ συμβεβηκός· ὁ γὰρ ἂν ἢ μήτ' αἰεὶ μήθ' ὡς ἐπὶ τὸ πολὺ... οἷον ἐπὶ κυνὶ ἂν χειμῶν γένηται καὶ ψυχρός, τοῦτο συμβῆναι φαμεν, ἀλλ' οὐκ ἂν πνίγος καὶ ἀλέα, ὅτι τὸ μὲν αἰεὶ ἢ ὡς ἐπὶ τὸ πολὺ τὸ δ' οὐ.

What characterizes the notion of being for the most part is regularity, the type of regularity that one finds in nature, under the domain of natural laws, which are not exceptionless.³⁰

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To recapitulate the discussion so far, causal change for Aristotle involves the mutual activation of active and passive powers, brought about by the contact between ontologically interdependent pairs of powers, such as what can heat and what can be heated. The mutual activation of interdependent powers may result either in activity (e.g. seeing) or in a process of change (e.g., being heated). All that happens in Aristotle's world is that powers in potentiality come to be activated, either as agents of change or as patients of change. What is distinctive about the view (in contrast with the versions in contemporary metaphysics) is that it takes the activation of a causal power to be the exercise of that power (i.e., an activity or process).

1.4 RELATIONS AND RELATIVES

Powers for Aristotle are not relational properties. There is no (external) relation connecting a power in potentiality to its actuality (rather, the actuality is the very same power in a different state, namely engaged in an activity). There are good reasons for not treating powers as relations, even if Aristotle does not discuss them explicitly. On the one hand, if a power is *defined* in terms of its actuality, where the definition defines the power's nature (e.g., the power to *heat*) it should be the case that the power is one with its essential nature; the essential nature of a power should not be a different entity to which the power is related. This we know from Aristotle's arguments in *Metaphysics* VIII 6. Nor should a power only *tend* towards its powerfulness—as if its powerfulness were external to the power itself—because this latter view would not make philosophical sense. That is, it would divide a power from what it is. Furthermore, there is no relation connecting mutually dependent powers. Rather, for Aristotle powers are *relatives*. Aristotle's powers are dependent on other powers in order to be activated, but ontological dependence is grounded

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on *monadic properties*, such as ‘*y* being a father’ and ‘*x* being an offspring’, that belong to interdependent entities. Aristotle’s powers are *not* related to other powers through polyadic relations, such as ‘*x* being the father of *y*’. Aristotle explained the ontological dependence between relatives reductively, as a *counterfactual* dependence (e.g., if there is no master there is no slave).³¹ If we apply this understanding of ontological dependence to the case of causal relata, it follows that taking causal relata as ontologically interdependent amounts to the view that if there is no patient of change, there is no cause of change (there is no power to heat if there is no power for being heated up).³² I will begin by offering what I think is the rationale for this approach, by sketching an intuition that stems from Aristotelian metaphysical principles.³³ I submit that this rationale motivates Aristotle’s reductive account of relations in terms of monadic properties.

We know from Aristotle’s *Categories* (chapter 1) and from the *Metaphysics* (book VII chapter 4) that even incidental properties (e.g., being pale, or being hot) have essences and definitions. Furthermore, properties cannot exist unattached, on their own, but they have to belong to a subject (see *Categories* chapter 2). If we then consider a relation between two things, for example, Marco being the father of Pietro, and we try to think of this relation as a single polyadic property that conjoins the two, Marco and Pietro, decisive difficulties follow. On the one hand, this polyadic property would belong to both subjects, since it can only exist by belonging to something(s) as subject, and both subjects have a claim to it by being conjoined by it. On the other hand, although Marco is related to Pietro as a father, Pietro is not related to Marco as a father, but as a son; hence, either the polyadic property would belong to Pietro without being true of him; or the polyadic property would have two different natures, endowing each of the two conjoined entities with different qualifications, of being a father and being a son, which is incompatible with the property being one and the same

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property (i.e., relation). The asymmetry of the relation introduces a plurality of natures; the relation is these natures, and this plurality undermines its oneness. Conceiving of relations as polyadic properties was not even entertained by Aristotle. For Aristotle, what we consider relations are accounted for in terms of monadic properties that are ontologically interdependent—that is, relatives. They are monadic properties of a special kind, which he called the *pros ti* (the ‘toward something’) type of property: such properties in themselves point toward something other than themselves. Thus, Aristotle says:

We call *relatives* all such things as are said to be just what they are, *of* or than other things, or in some other way *in relation to* something else. For example, what is larger is called what it is *than* something else (it is called larger than something); and what is double is called what it is *of* something else (it is called double of something); similarly with all other such cases. (*Cat.* 6a36–b2)

Πρός τι δὲ τὰ τοιαῦτα λέγεται, ὅσα αὐτὰ ἄπερ ἐστὶν ἐτέρων εἶναι λέγεται ἢ ὁπωσοῦν ἄλλως πρὸς ἕτερον· οἷον τὸ μείζον τοῦθ' ὅπερ ἐστὶν ἐτέρου λέγεται, —τινὸς γὰρ μείζον λέγεται,— καὶ τὸ διπλάσιον ἐτέρου λέγεται τοῦθ' ὅπερ ἐστίν, —τινὸς γὰρ διπλάσιον λέγεται.— ὡσαύτως δὲ καὶ ὅσα ἄλλα τοιαῦτα.

(Aristotle does not distinguish between relatives and relations. I take it this is for the reason given above: that neither relatives nor (asymmetric) relations can be single polyadic properties with a *single* nature belonging to each of the two relata it is true of.) What does Aristotle mean by taking relatives to be *pros ti*—toward something? He explains it as follows:

All relatives are spoken of in relation to correlatives that reciprocate. For example the slave is called slave of a master and the master is called master of a slave (*Cat.* 6b28–30)

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Πάντα δὲ τὰ πρὸς τι πρὸς ἀντιστρέφοντα λέγεται, οἷον
ὁ δοῦλος δεσπότου λέγεται δοῦλος καὶ ὁ δεσπότης δούλου
δεσπότης λέγεται...

Pros ti properties are monadic properties such that their manifestation or activation depends counterfactually on the activation of their correlatives. Someone is actually a master only if there is a slave of whom he is master, and vice versa for the slave. The relation between the reciprocating correlatives is not a linguistic or a semantic relation. It is an *ontological interdependence*, as Aristotle states clearly:

If there is no master, there is no slave either... When there is a slave there is a master; and similarly with the others [*sc.* other relatives] Also, each carries the other to destruction; for if there is not a double there is not a half, and if there is not a half if there is not a double. So too with other such cases. (*Cat.* 7b5–22)

μὴ γὰρ ὄντος δεσπότου οὐδὲ δοῦλός ἐστιν... καὶ δούλου ὄντος δεσπότης ἐστίν· ὁμοίως δὲ τοῦτοις καὶ τὰ ἄλλα. καὶ συναναιρεῖ δὲ ταῦτα ἄλληλα· μὴ γὰρ ὄντος διπλάσιου οὐκ ἔστιν ἥμισυ, καὶ ἥμισεος μὴ ὄντος οὐκ ἔστι διπλάσιον· ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων ὅσα τοιαῦτα.

So the ‘pointing’ nature of relatives is Aristotle’s way of depicting ontological dependence. This is what binds monadic properties into reciprocal pairs for their activation (e.g., being a master and being a slave). But ontological dependence is not a polyadic relation between *relata*. Just as there is no polyadic connection binding a species to its genus, in spite of their ontological interdependence, similarly, for Aristotle, there is no polyadic connection binding one activated monadic property to its correlative property.³⁴ The same holds for the relation between matter and form, and subject and property, where Aristotle is explicit that there is no (polyadic)

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entity unifying them into one.³⁵ The relation between the reciprocating correlatives is not a linguistic or a semantic relation. It is an ontological relation of interdependence, as Aristotle states clearly in the last passage quoted. So the ‘pointing’ nature of relatives is Aristotle’s way of depicting ontological dependence. This is what binds relative monadic properties into reciprocal pairs (e.g., being a master and being a slave): that the correlatives are ontologically interdependent. The last quotation above is important for understanding Aristotle’s notion of dependence, as it applies to *relata*. He says that each *relatum* carries the other *relatum* ‘to destruction’. He is therefore clearly describing an existential dependence between *relata*: if there is no master there is no slave. (Some dependencies are expressed in generic terms, and some in specific terms, with the dependencies specified respectively.)³⁶

1.5 CAUSATION WITHOUT GLUE

The two pillars of Aristotle’s theory of causation are his account of powers and his reductive account of relations. In a nutshell, for Aristotle, *causation is the activation of reciprocal causal powers*. Aristotle considers causal powers as *relatives*; namely, the agent and patient in a causal pair are causal relatives. In *Metaphysics* book V Aristotle explains the term ‘relative’ or ‘relation’ as follows:

Things are relative [*pros ti*] (1) as double to half, and treble to a third,...and that which exceeds to that which is exceeded; (2) as that which can heat to that which can be heated, and that which can cut to that which can be cut, and *in general the active to the passive*; (3) as the measurable to the measure, and the knowable to knowledge, and the perceptible to perception. (*Met.* 1020b26–32, my emphasis)